

acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

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#1
COOT.
SUB
I'
- (a) a nucleotide sequence of SEQ ID NO:1,
 - (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
 - (c) a nucleotide sequence of SEQ ID NO:3,
 - (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
 - (e) a nucleotide sequence of SEQ ID NO:5,
 - (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
 - (g) a nucleotide sequence of SEQ ID NO:7,
 - (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8, and
 - (i) a nucleotide sequence isolated from a plant selected from the group consisting of leguminous plants, lamiaceous plants, and monocotyledon, said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of any one of (a) to (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C.

~~112~~
SUB
I2
Claim 4. (Twice Amended) The isolated nucleic acid according to claim 1, wherein the leguminous plant is broad bean.

~~113~~
SUB
I3
Claim 7. (Twice Amended) The isolated nucleic acid according to claim 1, wherein the leguminous plant is soybean.

~~114~~
SUB
I4
Claim 11. (Twice Amended) The isolated nucleic acid according to claim 1, wherein the lamiaceous plant is Japanese artichoke.

~~115~~
SUB
I5
Claim 15. (Twice Amended) The isolated nucleic acid according to claim 1, wherein the monocotyledon is a gramineous plant.

~~116~~
SUB
I6
Claim 30. (Four Times Amended) A chimera gene comprising:
a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence of SEQ ID NO:1,

(b) a nucleotide sequence encoding the amino acid sequence of
SEQ ID NO:2,

(c) a nucleotide sequence of SEQ ID NO:3,

(d) a nucleotide sequence encoding the amino acid sequence of
SEQ ID NO:4,

(e) a nucleotide sequence of SEQ ID NO:5,

(f) a nucleotide sequence encoding the amino acid sequence of
SEQ ID NO:6,

(g) a nucleotide sequence of SEQ ID NO:7,

(h) a nucleotide sequence encoding the amino acid sequence of
SEQ ID NO:8, and

(i) a nucleotide sequence isolated from a plant selected from
the group consisting of leguminous plants, lamiaceous plants, and
monocotyledon, said nucleotide sequence is hybridizable with a
nucleotide sequence complementary to the nucleotide sequence of
any one of (a) to (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C,
and a promoter linked thereto.

Claim 32. (Four Times Amended) A plasmid comprising a
nucleic acid isolated from a plant comprising a nucleotide
sequence coding for an amino acid sequence of a protein which
produces raffinose by combining a D-galactosyl group through an
 $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at
position 6 of a D-glucose residue in a sucrose molecule, wherein

said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- 47
SUB
I7
- (a) a nucleotide sequence of SEQ ID NO:1,
 - (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
 - (c) a nucleotide sequence of SEQ ID NO:3,
 - (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
 - (e) a nucleotide sequence of SEQ ID NO:5,
 - (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
 - (g) a nucleotide sequence of SEQ ID NO:7,
 - (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8, and
 - (i) a nucleotide sequence isolated from a plant selected from the group consisting of leguminous plants, lamiaceous plants, and monocotyledon, said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of any one of (a) to (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C.
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48
SUB
I8

Claim 36. (Four Times Amended) A method for metabolic modification, which comprises introducing a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a

D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- ~~48~~
SUB
I 8
- (a) a nucleotide sequence of SEQ ID NO:1,
 - (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
 - (c) a nucleotide sequence of SEQ ID NO:3,
 - (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
 - (e) a nucleotide sequence of SEQ ID NO:5,
 - (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
 - (g) a nucleotide sequence of SEQ ID NO:7,
 - (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8, and
 - (i) a nucleotide sequence isolated from a plant selected from the group consisting of leguminous plants, lamiaceous plants, and monocotyledon, said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of any one of (a) to (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C, into a host organism or a cell thereof, so that the content of raffinose family oligosaccharides in the host organism or the cell thereof is changed.

Claim 40. (Twice Amended) An isolated nucleic acid comprising (i) a polynucleotide having a sequence that encodes a protein having an amino acid sequence selected from the group consisting of SEQ ID NOS:2, 4, 6, or 8 or (ii) a polynucleotide having a sequence complementary to said sequence, or (iii) a polynucleotide isolated from a plant selected from the group consisting of leguminous plants, lamiaceous plants, and monocotyledon, said polynucleotide hybridizes to the polynucleotide (i) or (ii) in 0.9 M NaCl, 0.09 M citric acid at 65°C.

Claim 41. (Twice Amended) An isolated nucleic acid comprising (i) a polynucleotide having a nucleotide sequence selected from the group consisting of SEQ ID NOS:1, 3, 5, or 7 or (ii) a polynucleotide having a sequence complementary to said sequence, or (iii) a polynucleotide isolated from a plant selected from the group consisting of leguminous plants, lamiaceous plants, and monocotyledon, said polynucleotide hybridizes to the polynucleotide (i) or (ii) in 0.9 M NaCl, 0.09 M citric acid at 65°C.

Claim 43. (Amended) An isolated nucleic acid comprising a nucleotide sequence coding for the amino acid sequence of SEQ ID NO:2.

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H9
cont. Claim 44. (Amended) An isolated nucleic acid comprising a
nucleotide sequence coding for the amino acid sequence of SEQ ID
NO:4.

A marked-up copy of the claims is attached hereto to show
the changes made by this Reply.